

# Office of the Chief Medical Officer of Health

## New Brunswick Lyme Disease Strategy 2017

### Introduction

Lyme disease has been a rare condition in Canada; however, since 2003, there have been an increasing number of Lyme disease cases acquired in the country. Studies indicate that projected increases in temperature associated with climate change are expected to accelerate the geographic range expansion of blacklegged ticks (*Ixodes scapularis*)<sup>1</sup>. Climate change could also enhance climatic suitability for the expansion and establishment of other tick species and diseases.

Lyme disease is an emerging disease and the geographic areas of risk are increasing in New Brunswick. Lyme disease is treatable with antibiotics when diagnosed at the early stages, but if treatment is delayed disseminated illness may occur and serious symptoms result. Lyme disease has also emerged as a political issue with individuals and groups advocating concerns about physician awareness, laboratory diagnosis and treatment options.

The goal of the Office of the Chief Medical Officer of Health (OCMOH) is to prevent and control the spread of communicable diseases. This occurs through funding the Regional Health Authorities (RHAs) and other partners, monitoring disease and events of Public Health (PH) significance, and planning programs and policies. This work doesn't occur in isolation and requires ongoing collaboration with stakeholders and partners.

This strategy outlines work to be done in 2017 which includes ongoing collaboration, conducting surveillance, providing education and awareness, and enhancing, as necessary, guidelines for best practices.

### Collaboration

The Office of the Chief Medical Officer (OCMOH) of Health collaborates with stakeholders and partners to help prevent and control communicable diseases. OCMOH partners with the National Microbiology Laboratory, the Public Health Agency of Canada, the Department of Agriculture, Aquaculture and Fisheries, the New Brunswick Medical Society, other researchers and advocacy groups.

#### Work to do in 2017:

- Collaborate with the New Brunswick Medical Society and provide a report of the 2016 survey of New Brunswick physicians. Health care practitioners, particularly those in areas of endemicity, should be familiar with the clinical manifestations and recommended practices for diagnosing, testing, and treating Lyme disease. A better understanding of New Brunswick physicians' clinical experience and management of Lyme disease would be beneficial to all relevant partners and stakeholders.

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<sup>1</sup> Ogden, et al. Environmental risk from Lyme disease in central and eastern Canada: a summary of recent surveillance information, CCDR: Vol 40-5, March 6, 2-014

- Based on the results of the report of the 2016 survey of New Brunswick physicians determine education and awareness messages for physicians regarding the early diagnosis, treatment and reporting of Lyme disease.
- Collaborate with the New Brunswick Lyme Disease Association Inc., and other stakeholders.
- Continue supporting research to help better understand Lyme disease in New Brunswick.
- Collaborate with the National Microbiology Laboratory and Public Health Agency of Canada on tick surveillance activities.

## Surveillance

### Disease Surveillance:

Disease surveillance involves the collection, analysis, and interpretation of information on provincially notifiable communicable diseases. In general, this data can be used to monitor changes in diseases, evaluate the effectiveness of control and prevention measures, respond to disease outbreaks, and help identify high risk populations or areas. Provincial surveillance data is also used for national disease surveillance activities.

National Lyme disease surveillance began in 2009 and enhanced national surveillance was implemented in 2011. Standardized national surveillance case definitions currently include laboratory confirmed and probable case definitions. Surveillance systems provide important information; however, the number of reported cases does not reflect every case of Lyme disease that is diagnosed. The true number of cases is expected to be higher.

In New Brunswick in 2016, 8 confirmed cases of Lyme disease were reported to Public Health, with an incidence rate of 1.1 per 100,000 population<sup>2</sup>. An average of 6.6 cases (range 5-11 cases) per year was reported in the previous 5 years (2011-2015) with an average incidence rate of 0.9 per 100,000 population<sup>3</sup>. The annual changes in the Lyme disease incidence rates should be interpreted with caution; the relatively low number of cases can result in major fluctuations in the rate from year to year.

**Table:** \*Number of new NB Laboratory confirmed Lyme disease cases (2006-2016)<sup>4,5</sup>.

Year	Cases
2006	1
2007	7
2008	0
2009	0
2010	2
2011	5
2012	7
2013	5
2014	5
2015	11
2016	8

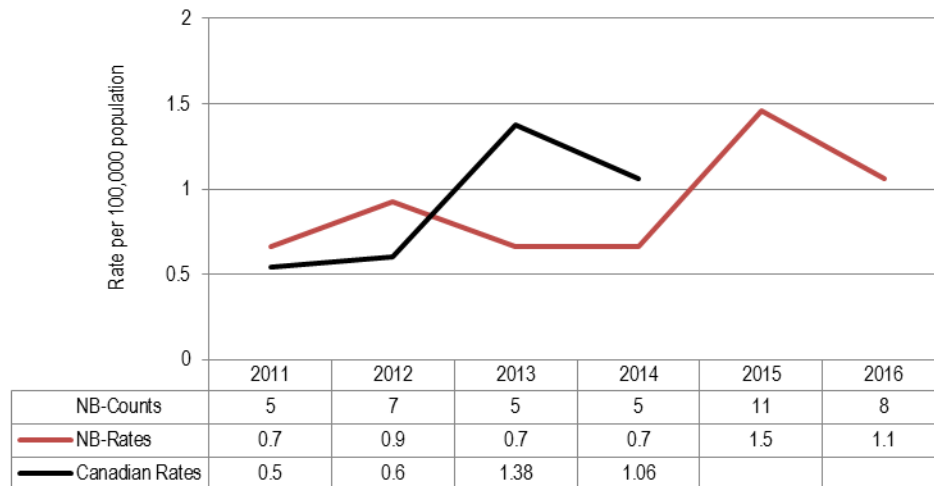
<sup>2</sup> NB Communicable Disease 2016 Annual Report (not published yet)

<sup>3</sup> NB Communicable Disease 2015 Annual Report (not published yet)

<sup>4</sup> NB Communicable Disease 2013 Annual Report

<sup>5</sup> NB Communicable disease 2014 Annual Report

The number of Lyme disease cases is rising in Canada with the establishment of breeding tick populations and Lyme disease endemic areas<sup>6</sup>. Similarly, reported laboratory confirmed cases of Lyme disease are increasing in the province. **Graph:** Lyme disease case counts and incidence rates per 100,000 population for NB and Canada, 2011-2016<sup>7</sup>.



## Work to do in 2017

- Support the national surveillance program to use data collected by the Public Health Agency of Canada to track incidence rates.
- Develop strategic plans to improve New Brunswick physician reporting of Lyme borreliosis to New Brunswick Regional Public Health.

**Tick surveillance:** The Office of the Chief Medical Health collaborates with the Department of Agriculture, Aquaculture and Fisheries, the Public Health Agency of Canada and other experts to define and monitor the occurrence of tick species and tick borne pathogens in New Brunswick. Tick surveillance may be passive collection of ticks by the public; or active, collecting ticks from their natural habitat by drag sampling for ticks and or small rodent trapping.

Passive tick surveillance has been ongoing since 1994. Ticks found on humans and domestic animals are submitted by the public and veterinarians to regional Public Health Offices and the Provincial Veterinary Laboratory. Ticks are identified as to species and tested for *Borrelia* and other pathogens at the National Microbiology Laboratory.

Most of the ticks submitted are single adult females and represent dispersal of ticks by migratory birds. However, only certain areas have the appropriate climate, habitat, and available mammalian hosts to support tick life cycles and establishment of reproducing tick populations infected with *B burgdorferi*. Analysis of tick surveillance data can help confirm areas where ticks are. Although it is possible to be bitten by an infected

<sup>6</sup> Ogden, et al. Environmental risk from Lyme disease in central and eastern Canada: a summary of recent surveillance information, *CCDR*: Vol 40-5, March 6, 2014

<sup>7</sup> Please note that the denominators used to calculate the incidence rates are subject to change as national incidence rate for 2015 and NB population estimates for 2016 are not published as of this report date. NB Communicable Disease 2016 Annual Report (not published yet).

tick anywhere in New Brunswick, the risk is highest in areas where tick populations are established or emerging. Locations where tick populations are established or emerging are risk areas. Communities in the currently identified risk areas include<sup>8</sup>:

- Grand Manan Island
- Grand Bay/Westfield, Saint John, Rothesay, and Quispamsis
- St Stephen, Saint Andrews and St George

#### **Work to do in 2017:**

- Support the identification of areas where blacklegged ticks are established or emerging while recognizing that ticks can be found outside currently identified areas.
- Improve public participation in tick surveillance activities.
- Revise and update Lyme disease information on the Office of the Chief Medical Officer of Health's website to support knowledge and awareness of risk areas.

## **Education and Awareness**

Education messaging increases knowledge and awareness of risk, prevention, and management of early Lyme disease for both the public and health care professionals.

Public awareness messages regarding risk, prevention and early detection of Lyme disease are disseminated through Department of Health website content, Lyme disease press releases, radio ads, social marketing (Facebook ads and tweets), and public information sessions. Public communications provide accurate and accessible information to help people make informed decisions, to promote specific measures individuals can take to prevent Lyme disease, and to increase public participation in tick surveillance.

Health care professional awareness messaging regarding reporting cases, risk, prevention and early detection of Lyme disease are disseminated through direct communications with physicians (for example letters and Disease Watch Bulletins, and physician information sessions), and in Department of Health website content. New Brunswick currently follows national guidelines and recommendations for health professional information regarding laboratory testing and clinical management.

#### **Work to do in 2017:**

- Support national standardization of educational materials to increase national awareness about the disease to enhance prevention, identification, treatment and management.
- Revise and update Lyme disease information on the Office of the Chief Medical Officer of Health's website to support public knowledge and awareness of the risk of acquiring Lyme borreliosis and provide advice on health promotion and disease prevention, as necessary.
- Revise and update Lyme disease information on the Office of the Chief Medical Officer of Health's website to support Health Professionals in identifying cases of tick borne illness early for appropriate post exposure management treatment, awareness of endemic and risk areas, understanding clinical manifestations, appropriate management of early Lyme disease symptoms and reporting human cases to Public Health.

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<sup>8</sup> As of this report date

## Guidelines and Best Practices

Most cases of Lyme disease can be treated successfully without laboratory confirmation if diagnosed early and treated with antibiotics. The diagnosis of Lyme disease is primarily clinical, supported by a history of possible tick exposure. An additional diagnostic tool is the detection of antibodies using the two-tiered serological method.

New Brunswick currently endorses evidence based on national guidelines and recommendations for health professionals regarding laboratory testing and clinical management. Guidelines on clinical assessment and post exposure prophylaxis treatment of Lyme disease are available from the Infectious Diseases Society of America (IDSA) and laboratory diagnosis guidelines from the Canadian Public Health Laboratory Network (CPHLN). These guidelines have been shared with professionals within the province.

### **Work to do in 2017:**

- Support establishment of guidelines regarding the prevention, identification, and post exposure management of early Lyme disease and sharing of best practices throughout Canada.
- Support evidence based research on improved diagnostic methods and on the strains and species of tick-borne pathogens, their geographic locations, and their possible implications for diagnosis and disease severity.